Evolution of Aerosol Properties in the Arctic Polar Vortex

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The multiangle aerosol spectrometer probe (MASP) was flown on the NASA ER-2 during the SOLVE mission, January-March 2000. A major fraction of the measurements were made in the polar vortex over a range of temperatures. The MASP measures light scattered by individual particles in forward and backward direction as they pass through the instrument's laser beam. From these measurements are derived particle size, refractive index, and shape factor. These particle properties change relative to temperature and humidity conditions throughout the vortex. How these properties change depend upon their location up or downwind of the coldest temperatures (< 190 K) in the vortex. The evolution of these aerosol properties, as the particles pass through the cold vortex pool, will be discussed and related to the environment through which the particles pass along the back trajectory.